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Naimul Karim

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EXAMINER

KOEHLER, CHRISTOPHER M

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**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Application Number: 10/749,306
Filing Date: December 31, 2003
Appellant(s): KARIM ET AL.

Daniel M. Pauly
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 8/11/2008 appealing from the Office action mailed 1/11/2008.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

6,599,125	FREILICH et al	7-2003
2003/0114553	KARIM et al	6-2003

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claim Rejections - 35 USC § 102

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1-7, 13-17 and 19-27 are rejected under 35 U.S.C. 102(e) as being anticipated by Freilich et al. (US Patent No. 6,599,125).

Claim 1:

Freilich teaches a method of making a dental appliance comprising providing a dental mill blank comprising a substantially uncured, self-supporting hardenable organic composition (col. 6, lines 57-60); machining the mill blank into a substantially uncured shaped article; and at least partially curing the shaped article to provide a hardened dental appliance (col. 8, lines 10-25; col. 8, line 36-col. 10, line 8; col. 12, lines 40-60). Freilich teaches that the dental mill blank is only cured enough to be sufficiently machined and therefore inherently encompasses that the mill blank is uncured, partially cured, or fully cured depending on the material used to comprise the mill blank.

Claims 2-7 and 13-16:

Freilich teaches a suitable composition for dental mill blanks in col. 4, line 23-col. 6, line 15.

Claim 17:

Freilich teaches the addition of many elements to form a suitable composition for dental mill blanks as cited above. The addition of any of these materials to the overall composition will inherently change the viscosity of the overall composition.

Claim 19:

Freilich teaches that the dental mill blanks can be used for a variety of dental purposes (col. 13, lines 13-18).

Claims 20, 21 and 24-27:

Freilich teaches processing the hardened dental appliance in a variety of ways including polishing, which is to be considered a form of machining (col. 12, lines 31-34; col. 13, lines 9-13).

Claims 22-23:

Freilich teaches machining with a CAD/CAM device (col. 8, line 36-col. 9, line 2).

Claim Rejections - 35 USC § 103

Claims 1-27 are rejected under 35 U.S.C. 103(a) as being obvious over Freilich et al. (US Patent No. 6,599,125) in view of Karim et al. (USPGPUB 2003/0114553).

The applied reference (USPGPUB 2003/0114553) has a common inventor with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art only under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 103(a) might be overcome by: (1) a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not an invention "by another"; (2) a showing of a date of invention for the claimed subject matter of the application which corresponds to subject

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matter disclosed but not claimed in the reference, prior to the effective U.S. filing date of the reference under 37 CFR 1.131; or (3) an oath or declaration under 37 CFR 1.130 stating that the application and reference are currently owned by the same party and that the inventor named in the application is the prior inventor under 35 U.S.C. 104, together with a terminal disclaimer in accordance with 37 CFR 1.321(c). This rejection might also be overcome by showing that the reference is disqualified under 35 U.S.C. 103(c) as prior art in a rejection under 35 U.S.C. 103(a). See MPEP § 706.02(l)(1) and § 706.02(l)(2).

Claim 1:

Freilich teaches a method of making a dental appliance comprising providing a dental mill blank comprising a substantially uncured, self-supporting hardenable organic composition (col. 6, lines 57-60); machining the mill blank into a substantially uncured shaped article; and at least partially curing the shaped article to provide a hardened dental appliance (col. 8, lines 10-25; col. 8, line 36-col. 10, line 8; col. 12, lines 40-60). Freilich teaches that the dental mill blank is only cured enough to be sufficiently machined and therefore inherently encompasses that the mill blank is uncured, partially cured, or fully cured depending on the material used to comprise the mill blank. In the event that applicant traverses this inherency applied to claim 1 above in view of Freilich, claim 1 is alternatively rejected under Freilich in view of Karim to specifically identify a composition that is millable in a substantially uncured state.

Karim teaches a hardenable self-supporting structure to be used in dental mill blanks. Karim teaches that this composition in its uncured state has rheological

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properties similar to waxes below the waxes' melting points in that they can be relatively easily deformed and exhibit low elastic recovery (paragraph [0042]) and is capable of being shaped by trimming, cutting, sculpting, grinding, etc (paragraph [0131]).

Therefore, the composition of Karim is inherently suitable to be machined in a substantially uncured state.

It would have been obvious to one of ordinary skill in the art at the time of invention to use the material composition of Karim in the method of Freilich in order to produce a machined implant that is substantially uncured at the time of implantation into a patient so that the practitioner is capable of finish molding the implant at the moment of implantation to provide the most exact and comfortable fit for the patient. The combined embodiment for the purpose of examination of the depending claims is the method of Freilich utilizing the composition of Karim, therefore composition claims are addressed by Karim and method steps addressed by Freilich.

Claims 2-4:

Karim teaches that the composition is a composite material comprising a resin system, an initiator system and a filler system (paragraph [0039]).

Claims 5-10:

Karim teaches that the polymerizable resin system comprises a crystalline component (paragraphs [0056]-[0065]).

Claim 11:

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Karim teaches that the resin system comprises an ethylenically unsaturated component (paragraph [0097]).

Claim 12:

Karim teaches the use of acrylates, methacrylates and vinyls (paragraph [0075]).

Claims 13 and 14:

Karim teaches the use of nanoscopic particulate filler materials (paragraph [0101]).

Claims 15 and 16:

Karim teaches the use of free radical or photo- or thermal initiators (paragraph [0110]).

Claim 17:

Karim teaches the use of a viscosity modifier (paragraph [0127]).

Claim 18:

Karim teaches the use of a surfactant (paragraph [0119]).

Claim 19:

Karim teaches that the hardenable material can be used in a variety of different dental applications including crowns (paragraph [0132]).

Freilich teaches that the dental mill blanks can be used for a variety of dental purposes (col. 13, lines 13-18).

Claims 20, 21 and 24-27:

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Freilich teaches processing the hardened dental appliance in a variety of ways including polishing, which is to be considered a form of machining (col. 12, lines 31-34; col. 13, lines 9-13).

Claims 22-23:

Freilich teaches machining with a CAD/CAM device (col. 8, line 36-col. 9, line 2).

(10) Response to Argument

Appellants' first assertion is that the material of Freilich is not "substantially uncured" when machined and thus fails to anticipate the claims. The examiner respectfully disagrees. First of all, appellants' definition of the term "substantially uncured" in the specification can not reasonably be found to be the exclusive definition of "substantially uncured". The modifier "substantially" is a term of art defining a term of degree equivalent to similar modifiers such as "mostly" or "largely". In interpreting claim limitations the examiner must give the claim the broadest reasonable interpretation of its terms. Accordingly, the examiner has interpreted the term "substantially uncured" to include "partially cured" for if the material were not at least partially cured in the instant application the proper claim limitation would be "uncured" instead of "substantially uncured". Freilich explicitly states that the material is "partially cur[ed] into a hardness sufficient to withstand cutting, carving or machining." Thus, Freilich is teaching us that one should cure only enough such that the material acquires a hardness sufficient to withstand machining, which teaching applies not only to a method of manipulating the material provided in Freilich but any suitable material known in the art. While appellants assert that a material difference exists in that the present invention seeks to eliminate

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curing before processing while Freilich emphasizes the need to cure before machining, the examiner fails to find this distinction persuasive because the claim limitations do not explicitly express that which the invention seeks to accomplish. By using a broad term such as "substantially uncured" which inherently includes at least a partial curing of the material the assertion that such a limitation establishes that appellants seek to eliminate curing is not found in the claim and is not binding on the examination thereof. Since the "partially cured" teaching of Freilich is broad enough to encompass appellants' "substantially uncured" limitation the claim was properly rejected as anticipated by Freilich and should be affirmed.

However, even if the Board were to find that appellants' narrow definition of "substantially uncured" to preclude the partial curing of Freilich, the examiner has brought forth the alternative obviousness rejection of Freilich in view of Karim which cures the hypothetical deficiency. While Freilich describes his method using a preferred material, he further teaches that a wide variety of known materials are suitable for performing the disclosed method (see Freilich; col. 4, line 43-col. 5, line 3). For the purpose of claim 1 in the alternative obviousness rejection, the focus is on the method of Freilich and primarily the teaching that the selected material is only cured to a hardness sufficient to withstand cutting, carving or machining (Freilich; col. 6, lines 57-60). Karim, like Freilich, teaches a material designed for use in forming dental products (abstract of both) which is self-supporting and has "rheological properties similar to waxes below the waxes' melting points" (paragraph [0042]). One of ordinary skill in the art of machining would readily recognize that the hardness of wax below its melting

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point is sufficient for cutting, carving or machining and in fact waxes are often machined in prototyping processes. Thus, the material of Karim is capable of being machined from its completely uncured state and at all levels of curing up until its completely cured state as the material will only harden more as it is cured.

Appellants assert that Karim teaches away from the present invention because the objective of the present invention is not to create a malleable composition, but rather to create a machineable composition. Appellants have failed to recognize that although the material of Karim is a malleable composition, it is also of sufficient hardness to be machined.

Since Karim is both a malleable and machineable material it is extremely well suited for the method of Freilich which encompasses both the forming of a material in its malleable state and machining of the same at sufficient hardness. With the material of Karim there is no longer a necessity to partially cure the material to sufficient hardness thus eliminating the difficult task of measuring the degree of curing to ascertain the hardness of the material, which elimination amounts to a recognizable increase in efficiency and simplicity of the method of Freilich. Furthermore, it must be recognized that potential over-curing of the material of Freilich having been corrected by the material of Karim results in a shaped and machined implant that is substantially uncured at the time of implantation into a patient so that the practitioner is capable of finish molding the implant at the moment of implantation to provide the most exact and comfortable fit for the patient.

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For the above reasons it is submitted that the obviousness rejection of Freilich in view of Karim is proper and should be affirmed.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/Christopher M. Koehler/

Examiner, Art Unit 3726

Conferees:

/DAVID P. BRYANT/

Supervisory Patent Examiner, Art Unit 3726

/Boyer D. Ashley/

Supervisory Patent Examiner, Art Unit 3724